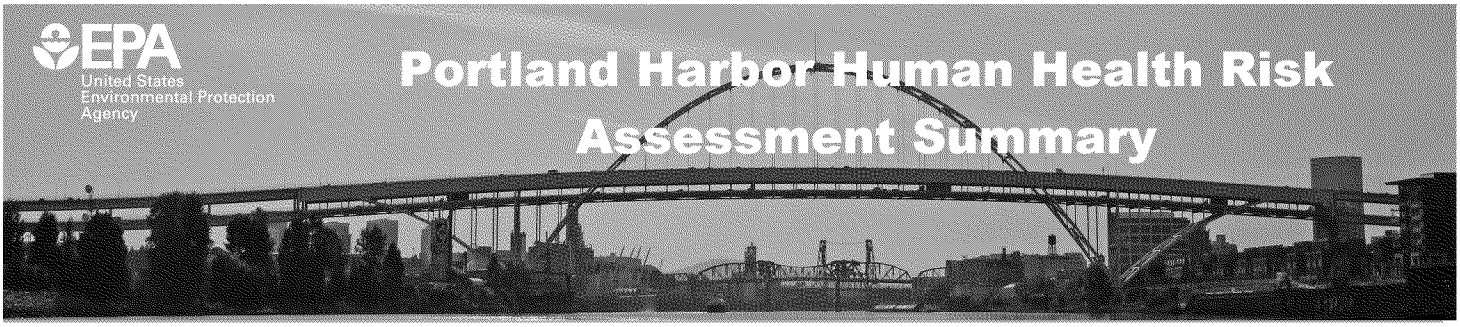
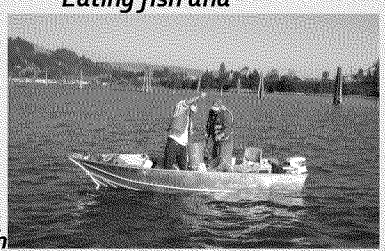


How are People Exposed to Contaminants?

Eating fish and shellfish



Infant consumption of breast milk from mothers exposed to contaminants

How are People Exposed to Contaminants?

Fishing within Portland Harbor is done from boats and from locations along the banks. For many people, fish caught from the river represent a supplemental food source, either because they simply like to eat the fish they catch, or are subsistence fishers. **Subsistence fishing** refers to fishing that provides a source of food, up to a substantial source of food for the fisher and/or family of the person doing the fishing, although fish are not an exclusive source of protein in their diet. Tribal fishing for both subsistence and ceremonial purposes is also a key activity along the river.

Fish accumulate contaminants such as polychlorinated biphenols (PCBs) in their tissue. Although fish species such as salmon and steelhead migrate through Portland Harbor and the Willamette River, **resident fish**, such as bass, catfish and carp, may spend their entire life cycle in Portland Harbor.

Many of the contaminants found in Portland Harbor, such as PCBs, are often found in fatty tissues and milk fat. As a result, breast fed infants can be indirectly exposed to these contaminants if their mothers have been exposed to contamination from Portland Harbor

Direct contact exposure to Portland Harbor contaminants occurs when a person comes into contact with contaminated shoreline or river sediment while engaged in recreational activities, living, or working in the area. For example, for dockside workers it might involve getting sediments on their skin, or accidentally ingesting of small amounts through unintentional hand-to-mouth transfer. For transient communities it may involve contact from beach sediment, during bathing in or drinking untreated river water. In some cases, these exposures are of greater concern for children than for adults.

Specifically, the exposure pathways evaluated in the Portland Harbor Human Health Risk Assessment include:

- ***Consumption of fish and shellfish taken from Portland Harbor***.
  The assessment considered recreational, subsistence, and tribal fishers who supplement their diet with fish caught in Portland Harbor.
- ***Infant consumption of human breast milk from mothers who are exposed to contaminants*** from Portland Harbor.
- Direct ***contact with in-water or shoreline sediment*** while recreating, living, or working in- or along the river.
  In order to avoid underestimating the possible exposure and thus the health risks, EPA identifies a "Reasonable Maximum Exposure" when conducting a risk assessment. This represents the highest exposure that could reasonably be expected to occur.

Summary of Results

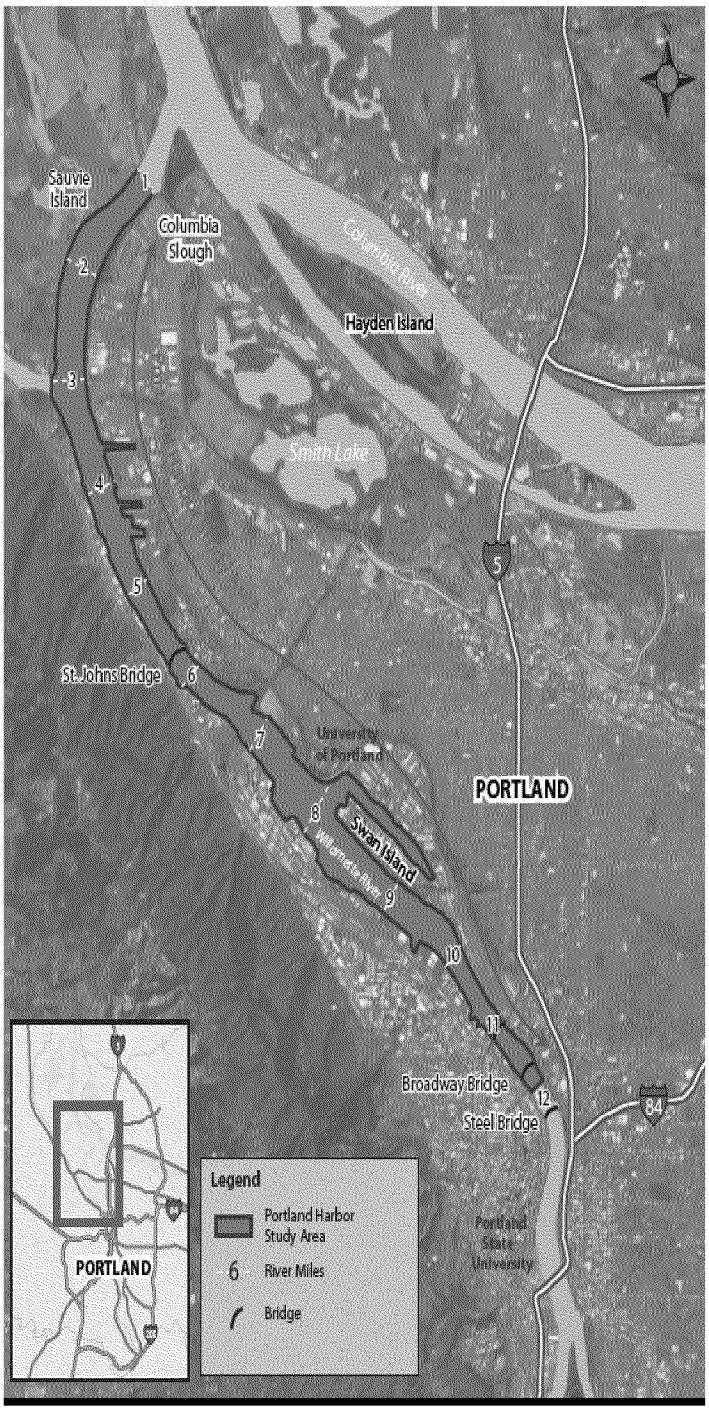
General Conclusions

- Eating resident fish from Portland Harbor is a health risk, especially for recreational and subsistence fishers, and infants that are breast fed by mothers who consume resident fish. PCBs are the primary contaminant associated with most of the risk from eating Portland Harbor fish. These health risks are great enough for EPA to consider a cleanup is needed under the Superfund law.

Specific Conclusions

- Eating resident fish species consistently results in the greatest risk estimates, with cancer risks higher for subsistence fishers than are recreational fishers.
- Non-cancer hazard estimates for consumption of resident fish at all river miles are high enough to take action.
- PCBs are the primary contributor to risk from fish consumption harbor wide.
- The highest non-cancer hazards are associated with nursing infants of mothers who eat resident fish from Portland Harbor. PCBs are the primary contributors to the non-cancer hazard to nursing infants.

Next Steps and Community Involvement



Portland Harbor Background:

In 2000, Portland Harbor was named a Superfund Site. The P
River from Sauvie Island (approximately river mile 2) to the B
mile 11). Over the past century, many different contaminar
properties. The contaminants of concern at the site include:
polychlorinated biphenyls (PCBs, a banned coolant fluid and
furans (byproducts of industrial processes), **polycyclic arom**
found in coal tars), **pesticides** (such as DDT, an insecticide
zinc, copper, arsenic, chromium and cadmium). The Lower
remedial investigation, risk assessments, and the feasibility st
that will be used by EPA to determine a cleanup strategy for Po

What's Next?

EPA is working with the Lower Willamette Group to finalize
and the feasibility study which evaluates cleanup alterna
investigation and feasibility study, EPA will develop a propose
series of public information sessions to discuss the propose
Until then, EPA will continue to meet with the public to p
concerns.

How Can I Get Involved?

One way people get involved is by participating with the Por
made up of members of the community and is designed to
about Portland Harbor cleanup activities. CAG meetings are h
For more information contact **Jim Robison** at 503-285-4805, o

Where can I find more information?

Sign up to receive news, updates, and meetings notices: http://bit.ly/ptlndhrbr

Copies of the full assessment report are available at the following locations:

EPA website www.epa.gov/region10/portlandharbor, or contact Alanna Conley for CD-ROM copies.

Multnomah County Central Library
(Government Documents)
801 SW 10th Avenue, Portland, OR 97205
https://multcolib.org/library-location/central/events

EPA Region 10 Oregon Operations Office
805 SW Broadway St., Suite 500
Portland, Oregon 97205
☎ 503-326-3250
(call for an appointment)

EPA Region 10 Superfund Records Center
1200 Sixth Avenue, Suite 900, ECL-076
Seattle, WA 98101
☎ 206-553-4494
(call for an appointment)

EPA Contacts

Alanna Conley, Community Involvement Coordinator
conley.alanna@epa.gov
503-326-6831

Elizabeth Allen, Human Health Risk Assessor
allen.elizabeth@epa.gov
206-553-1807

Chip Humphrey, Project Manager
humphrey.chip@epa.gov
503-326-2678

Kristine Koch, Project Manager
koch.kristine@epa.gov
206-553-6705